

Sewell

REPORT ON WORK WITH LOUSE POWDERS AT THE PRISON  
AT MAISON CARREE, ALGERIA. ~~CONFIDENTIAL~~

The opportunity to work at the Maison Carree prison came through the good offices of Dr. Edmond Sergent, the Director of the Pasteur Institute. The first visit to the prison was made on July 23rd with Dr. Beguet, who had previously carried out tests of different types of vaccine at the prison.

All work and observations on louse powder herewith reported have been done by one or more of the group (Dr. Buck, of the Pasteur Institute; Drs. Davis, Markham, Riehl and Soper, of the Rockefeller Foundation) assisted by inmates of the prison working under close direct supervision.

Experiment 1.

The initial test at Maison Carree was planned to secure data under conditions of natural infestation of the comparative lousicidal action of GNB and MYL, the two louse powders giving the most favorable results in treating artificial infestations. Plans were made to eliminate as far as possible the influence of reinfestation of the test groups. Outside reinfestation was not entirely preventable and of course any failure of either of the insecticides provided an opportunity for internal reinfestation.

A preliminary survey of lousiness in Wards I and II, the male wards of the prison, was made between July 26 and 29th.

Prepowdering louse counts. July 26 to 29.

| Ward  | Number examined | With lice | With over 9 lice | Percent lousy | Percent with over 9 lice |
|-------|-----------------|-----------|------------------|---------------|--------------------------|
| 1     | 108             | 104       | 77               | 96            | 71                       |
| 2     | 50              | 49        | 39               | 98            | 78                       |
| Total | 158             | 153       | 116              | 97            | 73                       |

Ward 1. was chosen for the first test; Ward 2. to serve as a control against the possibility of a seasonal reduction of louse incidence being attributed to the use of insecticide.

The 108 men examined in Ward 1. were divided into three groups of 36 men each. The clothing and blankets of the men in Group 1. were dusted with a 5 % mixture of GNB in barytes (Barium sulphate) produced at Maison Carree, and redusted with the same material 17 days later; the clothing and blankets of the men of Group 2. were dusted twice at a 7 day interval with MYL (from a shipment arriving in North Africa in April 1943) and those of group 3. were dusted twice at an interval of 14 days with MYL from the same shipment.

All other inmates of Ward 1. were placed in group 4 and treated with MYL twice to prevent them from reinfesting the study groups.

Plans were made to apply insecticide M to the garments of all new prisoners coming to Ward 1. and to those returning to the Ward after a stay in the prison infirmary.

So far as is known, the only persons to escape the initial dusting of group 4 were three of the prisoners who assist the guards in the administration of the Ward and 15 men who work in the bakery. The assistant guards were dusted 3 days, the bakers 13 days after the first dusting of group 4. This failure to dust all of group 4 is probably of little importance since these 18 men all enjoy special privileges, are much cleaner than the common run of prisoners and have separate quarters.

#### Application of insecticides.

The insecticides were applied by dusting from cylindrical tins with a row of perforations about the base. Powder was shaken along the seams on the inner surfaces of the clothing and on both sides of the blankets used by the prisoners. The removal of clothing is a time consuming operation even in prison where the natural reluctance to distobe can be easily overcome. To avoid this delay and to facilitate the application of powder to the clothing of women, tests were made with one insecticide (G) of a portable blower of the type commonly used in applying powder insecticides to food plants. The initial applications gave surprisingly good distribution of powder on the inner surfaces of the clothing dusted in situ.

|                                   | Group 1. | Group 2. | Group 3. | Group 4. Insecticide M. |               |        |                         |                  |
|-----------------------------------|----------|----------|----------|-------------------------|---------------|--------|-------------------------|------------------|
|                                   | Ins. G   | Ins. M   | Ins. M.  | Routine group           | Assist guards | Cooks  | Patients from Infirmary | New prisoners    |
| Dust-<br>ing 1.                   | Aug. 3   | Aug. 3   | Aug. 3   | Aug.3<br>Aug.4          | Aug. 7        | Aug.17 | Aug.13                  | Aug.16           |
| Dust-<br>ing 2.                   | Aug.20   | Aug.10   | Aug.17   | Aug.17<br>Aug.19        | Aug.17        | Aug.24 | Aug.23                  | Aug.23<br>Aug.24 |
| Days<br>between<br>dust-<br>ings. | 17       | 7        | 14       | 14-15                   | 10            | 7      | 10                      | 7-8              |

The clothing and blankets of groups 1, 2 et 3 were examined at intervals after both first and second treatment. Whereas, in predusting examinations, counts were discontinued on any given individual when 10 lice had been found; post treatment examinations covered the inner surfaces of all the clothing worn.

| Prisoners with lice                      |          |      |                   |          |      |                     |          |      | Number of lice found |          |     |     |          |     |     |          |     |     |
|--|----------|------|-------------------|----------|------|---------------------|----------|------|----------------------|----------|-----|-----|----------|-----|-----|----------|-----|-----|
|  | Group 1. |      |                   | Group 2. |      |                     | Group 3. |      |                      | Group 1. |     |     | Group 2. |     |     | Group 3. |     |     |
|  | ex.      | Pos. | Over<br>9<br>lice | ex.      | Pos. | Over<br>9<br>lice c | ex.      | Pos. | Over<br>9<br>lice    | I.       | N.  | A.  | I.       | N.  | A.  | I.       | N.  | A.  |
| Relation of<br>count to 1st<br>treatment | 36       | 35   | 26                | 34       | 33   | 26                  | 34       | 32   | 23                   | 53       | 171 | 231 | 53       | 211 | 136 | 44       | 215 | 151 |
| 2-4 days                                 | 36       | 27   | 3                 | 34       | 18   | 1                   | 34       | 18   | 0                    | 115      | 7   | 8   | 41       | 2   | 0   | 32       | 5   | 1   |
| 6-7 days                                 | 35       | 19   | 0                 | 34       | 24   | 3                   | 34       | 22   | 5                    | 60       | 8   | 3   | 76       | 18  | 5   | 98       | 21  | 1   |
| 10 days                                  | 35       | 6    | 0                 | 34       | 0    | 0                   | 34       | 15   | 2                    | 1        | 13  | 0   | 0        | 0   | 0   | 23       | 51  | 5   |
| 13 days                                  | 35       | 6    | 0                 | 34       | 0    | 0                   | 34       | 12   | 1                    | 0        | 6   | 1   | 0        | 0   | 0   | 2        | 28  | 2   |
| 17 days                                  | 35       | 6    | 0                 | 32       | 1    | 0                   | Not ex.  |      |                      | 1        | 1   | 8   | 0        | 1   | 0   | not ex.  |     |     |
| 24 days                                  | 33       | 2    | 0                 | 33       | 0    | 0                   | 32       | 0    | 0                    | 0        | 1   | 1   | 0        | 0   | 0   | 0        | 0   | 0   |
| 30 days                                  | 32       | 0    | 0                 | 32       | 1    | 0                   | 33       | 0    | 0                    | 0        | 0   | 0   | 0        | 0   | 1   | 0        | 0   | 0   |
| 42 days                                  | 33       | 0    | 0                 | 29       | 1    | 1                   | 32       | 2    | 0                    | 0        | 0   | 0   | 0        | 11  | 4   | 1        | 1   | 1   |
| 56 days                                  | 30       | 1    | 0                 | 27       | 2    | 1                   | 30       | 2    | 0                    | 0        | 1   | 0   | 0        | 18  | 10  | 0        | 9   | 1   |
| 83 days                                  | 34       | 11   | 2                 | 32       | 19   | 8                   | 31       | 14   | 2                    | 13       | 53  | 11  | 41       | 236 | 96  | 13       | 31  | 18  |

I : instars

N : nymphs

A : adults

Underlining : second treatment

The controls in Ward 2. were counted 13 days after the first treatment and were found to have suffered no apparent reduction in lousiness.

The first examination of 50 prisoners in Ward 2, revealed 49 infestations of which 39 had 10 or more lice each; 13 days later examination of 49 of these revealed 48 infestations of which 44 were of 10 or more lice each. Examination of 100 prisoners in Ward 2, 26 days after treatment of Ward 1. began, showed 100 infestations of which 95 were of 10 or more lice each. The controls of other studies carried out in Ward 2. during the entire period of the later observations in Ward 1. failed to show any rapid diminution in the louse population of untreated individuals.

The results of Experiment I suggest :

a. That 5 % GNB is slow but certain in its action. The repetition of the treatment leaves unsolved the question as to whether the residual GNB in the clothing would have taken care of the offspring of the 8 adults found 17 days after treatment.

b. That MYL kills almost all of the forms present at the time of application but that its full activity is limited to a few days. On the other hand, there is some internal evidence of continued activity in Group 3.

c. The bulk of all post powdering hatching occurs during the first 9 or 10 days.

d. Apparently a 14 day interval between MYL treatments is not long enough to permit the effective development of new eggs by the lice which hatch out following the first treatment.

e. Although early results of 14 day interval MYL two treatment technique do not look as good as those of the 7 day interval MYL technique, the final results at the end of 83 days are considerably better.

f. Two treatments of either GNB or MYL can hold a louse population in check for 2 months and GNB at 17 day interval and MYL at a 14 day interval did so for almost three months. (In this connection, it is worth noting that at the time the 83 day counts were made, the prisoners still considered themselves practically louse free in comparison with their previous condition).